Killer Hardware Tips

Freshen Up WinXP's Rates & Personalize Your Own PVR

IF YOU'RE A USER WHO CAN'T LEAVE THINGS ALONE IF THERE'S A CHANCE YOU CAN MAKE THEM BETTER, EVEN IF IT MEANS BUCKING THE NORM, READ ON. WE HAVE SOME TIPS and tricks that just might make you more productive.

Feel Fresher

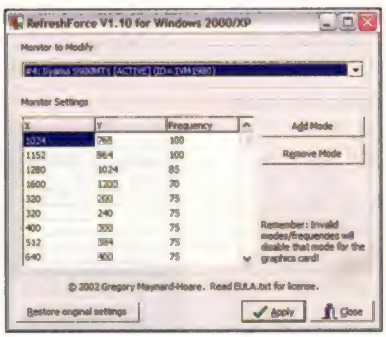
Using Windows XP can cause blurred vision, headaches, watery eyes, and difficulty concentrating. Is this the latest rhetoric from Mac OS X users? No, it's a complaint from Windows users who have discovered problems with the way XP handles screen refreshing.

The problem, according to Jason Webb, creator of the Web site xp-refresh.net, is that XP doesn't use the highest refresh rates that a PC's video card and CRT can handle. Refresh rate refers to the number of times an image is redrawn each second. Higher refresh rates mean that the user will perceive less flicker, which can cause headaches and other eyestrain symptoms.

Many people notice flicker at refresh rates of 60Hz (that is, 60 updates per second). Some individuals notice flicker at refresh rates between 60Hz and 72Hz, and very few notice any flicker above 72Hz. Even if you can't perceive flicker, it can affect your eyes, so it is best to use a refresh rate of 80Hz to 85Hz if your system will allow it. Some experts recommend using the highest refresh rate your video card and monitor support, which, depending on the setup, could exceed 100Hz. Others say that anything above 85Hz makes no difference to the eyes and unnecessarily taxes system resources.

With XP, the problems lie in the way the OS remembers optimal refresh rates at various resolutions, as well as the maximum refresh rates for certain types of games.

According to Webb's site, the original unpatched version of WinXP limits all DirectX games to 75Hz at every resolution, even if the computer and video card are capable of higher refresh rates. With Service Pack 1 (www.microsoft.com/windowsxp/pro/downloads/servicepack/sp1/default.asp) installed, DirectX games may work at higher refresh rates but only under certain conditions. Also, some OpenGL games, such as Quake III Arena, Jedi Knight II, and CounterStrike, are limited to a flickery, sometimes eyestrain-inducing 60Hz.



RefreshForce is a free program that forces Windows XP to use optimal refresh rates, reducing potential eyestrain.

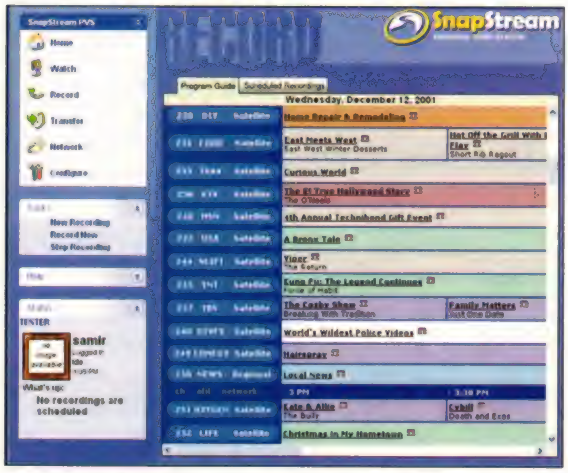
Even when you're not playing games, WinXP requires constant babysitting to prevent it from using a low refresh rate. According to xp-refresh.net, "In Windows 98/Me, Windows is automatically set at an 'Optimal' refresh rate setting in Display Properties, and always uses the highest refresh rate possible at every resolution on the Windows desktop. Since Windows XP and XP SP1 only use static refresh rate values instead of the 'Optimal' setting in Display Properties, every time you switch resolutions in XP, you have to manually change your refresh rate setting to the highest available in order to get the best display quality." WinXP doesn't remember your refresh rate settings when you change resolutions, meaning frequent trips to the Display Properties control panel.

"All these problems could easily be avoided with an 'Optimal' refresh rate setting that requires no user intervention," Webb writes. Webb asks on his site for Windows users to submit feedback to Microsoft, asking the company to correct the problem in Longhorn, the next version of Windows. (You can access the Windows product feedback form at tinyurl.com/40w9.)

Until Microsoft fixes the problem, you can install RefreshForce (www.pagehosting.co.uk/rf) or NV-RefreshTool (www.nvrt.org), free programs that force WinXP to automatically use the refresh rates you specify when switching resolutions.

Unless you have a high-end video card, the maximum refresh rate available on your PC varies depending on the resolution you are using—higher resolutions mean a lower refresh rate. As refresh rates and resolutions increase, the amount of video bandwidth required increases. The video driver will normally prevent you from setting combinations that exceed the capabilities of the video card or monitor. Some third-party software may let you exceed those recommendations, but doing so can damage the monitor.

Refresh rates aren't an issue with LCD monitors. They don't flicker no matter what your OS' refresh rate is set to, making LCDs easier on the eyes than CRT displays. Your OS may lock the LCD display's refresh rate at 60Hz, which is just fine.



You can easily see what's on television with SnapStream's Personal Video Station's channel guide.

Replay PC

If you have a PVR (personal video recorder), such as ReplayTV or TiVo, you've undoubtedly given away your VCR (or at least forgotten how to program it) while letting the digital recorder change the way you watch television.

If you haven't used a PVR, you're missing out. The digital devices let you pause television shows, record one show while watching another, effortlessly skip commercials, browse an on-screen program guide, and do other tricks that make the VCR pale in comparison.

You can even turn your PC into a PVR, letting your PC do everything the set-top PVRs can do, as well as some functions that they can't, such as archiving shows by burning them to CD-R. A PC-based PVR can act as a supplement to your ReplayTV or TiVo when there are just too many shows to record at once. Or use it in place of a television and VCR in a dorm room or other locale where space is limited.

SnapStream's Personal Video Station ($50; www.snapstream.com) and Home Media Network's ShowShifter ($50; www.showshifter.com) let you record and watch television using a Windows PC. There are also open-source alternatives for Linux. Freevo (freevo.sourceforge.net) is a Linux-based digital video jukebox you can use to watch television, surf a television program guide, and play back movies. It can't record television programs, though. Web-VCR+ (webvcrplus.sourceforge.net) is more mature. It can record from television and perform other PVR functions, but the Web-based interface lacks polish.

You can even take shows on the road. The PocketPVS Module is an upgrade for SnapStream's Personal Video Station that lets you download shows to your PocketPC handheld and watch them. (The module costs $30. A free version lets you store up to a half-hour of video on your PocketPC.)

The heart of a PC PVR set up is the TV tuner. You'll need either a video card with a TV tuner or a USB video capture device. The ATI ALL-IN-WONDER RADEON 8500 DV (about $170; www.ati.com) and Wonder TV Tuner Card (about $70) are popular choices. For vidiots on a budget, the Hauppauge WinTV GO card (www.hauppauge.com) is about $50 but has monaural sound input.

If a video card is the heart of a PC-based PVR, its soul is storage and lots of it. Standard quality video typically requires 1GB per hour. Higher-quality video can use double (or more) the storage space. So if you're planning to time-shift a lot of television programs and record movies, be ready to dedicate 60GB, 80GB, or even more hard drive space to the cause.

If your TV signal is delivered through a satellite system or cable descrambler, you'll need equipment for automated recording or a way to change the channel on the television box. (The TV tuner card remains set to the output channel of the TV box, usually channel 3 or 4.) If that box has a serial port and your software supports the ability, you can hook the PC's serial port directly to the cable box's serial input. Or, if your PC has an IrDA port, you may be able to use it to control the cable box. If not, you'll need an IR transceiver, or IR blaster, which is a device that turns signals from the PC's serial port into infrared signals that simulate a remote control. You can buy one from BOCA Labs (www.bocalabs.com), ACTiSYS (www.actisys.com), or other vendors.

Because each PVR software program is compatible with particular video capture cards and IR transmitters, it's best to choose the software you like best before you settle on the hardware. CPU

by Kevin Savetz

Infinite Loop

Watch Where You Aim That Thing!

Of course, we all know about Battlebots, but what if you would rather launch items into space than send robots into battle? You should have no problem finding fellow catapult artists. Below are just a few of the items people launch in the air.

Potatoes. Check out Potato Gunners Anonymous (groups.yahoo.com/groups/potatogunersanonymous) to learn how to best launch a starchy, multi-eyed veggie into space. Be careful where you aim those spuds.

Bubblegum. Rent the movie "Six-String Samurai" (www.sixstringsamurai.com) and you can watch villians operate a vehicle that incorporates a bubblegum-launching catapult.

Toilet paper. Yes, there are several toilet-paper catapults out there. See photos at members.iinet.net.au/~rmine/Greycos/trebfil3.html.

Hot dogs. If you attend a game at the University of Nebraska-Lincoln's Memorial Stadium, you'll see a man in a white lab coat use a special gun called Der Viener Schlinger to shoot hot dogs into the crowd. All Der Viener Schlinger needs now is its own Web page.